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IN REPLY REFER TO: Joint Interoperability Test Command (JTE) **07 Sept 12**

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Extension of the Special Interoperability Test Certification of the Alcatel-Lucent Class 5 Electronic Switching System (5ESS) Very Compact Digital Exchange (VCDX) Digital Switching System with Software Release 5E16.2, from Broadcast Warning Message (BWM) 10-0001 to BWM 12-0001

References: (a) DoD Directive 4630.5, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
(b) CJCSI 6212.01E, "Interoperability and Supportability of Information Technology and National Security Systems," 15 December 2008
(c) through (f), see Enclosure

1. References (a) and (b) establish the Defense Information Systems Agency, Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification.

2. The Alcatel-Lucent 5ESS VCDX Digital Switching System with Software Release 5E16.2, BWM 10-0001 is hereinafter referred to as the System Under Test (SUT). The SUT meets the critical interoperability requirements and is certified as interoperable for joint use within the Defense Information Systems Network (DISN). The SUT was tested and met the critical interoperability requirements for the following DISN switch types: Multifunction Switch (MFS) (except Europe), End Office (EO) (except Europe), Small End Office (SMEO) (except Europe), Private Branch Exchange (PBX) 1, PBX 2, and Deployable Voice Exchange. The SUT does not support the critical European interfaces required for MFS, EO, and SMEO switches. Therefore, the SUT is not certified by JITC nor approved by the DISN Program Management Office for use in Europe as a MFS, EO, or SMEO. The identified test discrepancies shown in the SUT Interoperability Summary have a minor operational impact. No other configurations, features, or functions, except those cited within this report, are certified by the JITC. This certification expires upon changes that affect interoperability but no later than two years from the date of the signed Department of Defense (DoD) Unified Capabilities (UC) Approved Products List (APL) approval Memorandum (18 October 2011).

3. The extension of this certification is based upon Desktop Review (DTR) 1. The original certification is based on interoperability testing conducted by JITC, DISA adjudication of open test discrepancy reports, review of the vendor's Letters of Compliance (LoC), and DISA Certifying Authority (CA) Recommendation. Interoperability testing of the SUT was conducted at JITC's Global Information Grid Network Test Facility (GNTF) at Fort Huachuca, Arizona, from 28 March through 8 April 2011 and documented in Reference (e). Review of the vendor's

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LoC was completed on 11 April 2011. The DISA CA provided a positive Recommendation on 31 August 2011 based on the security testing completed by DISA-led Information Assurance (IA) test teams and published in a separate report, Reference (f). This DTR was requested to include security fixes that were identified as part of the vendor Plan of Actions and Milestones (POA&M). This DTR also includes an update to the Netra 20 Administrative Service Module (ASM) from Sun Solaris version 5.8, which is no longer supported by Sun Microsystems, to Sun Solaris version 5.10. The Sun Solaris version 5.10 functionality is the same as version 5.8. This DTR also includes an update to the BWM release from 10-0001 to 12-0001. Release 12-0001 includes commercial software patches and security fixes. The DISA-led IA test team conducted a Verification and Validation test on 9 January 2012 to validate the security fixes from the vendor POA&M, documented in Reference (f). The DISA CA provided a positive recommendation on 29 March 2012 for this DTR. The security fixes and commercial software patches are very low risk to the certified interoperability posture, therefore, JITC approves this DTR without further interoperability testing.

4. The overall interoperability status of the SUT is indicated in Table 1. The interfaces and associated Capability Requirements (CRs) and Feature Requirements (FRs) critical used to evaluate the interoperability status are listed in Table 2. The interoperability test status is based on the SUT's ability to meet:

a. DISN services for Network and Applications specified in Reference (c).

b. The overall system interoperability performance derived from test procedures listed in Reference (d).

Table 1. SUT Interoperability Summary

DISN Trunk Interfaces			
Interface & Signaling	**Critical**	**Status**	**Remarks**
T1 CAS (DTMF, MFR1, DP)	Yes	Certified	Met all CRs and FRs.
E1 CAS (DTMF, MFR1, DP)	Yes (Europe only)	Not Tested	This interface is only required for deployment in Europe. This interface is not supported; therefore, the SUT is not certified for deployment in Europe. Since this is not a required interface for a MFS except when deployed in Europe, there is no operational impact.
T1 ISDN PRI NI 1/2 (ANSI T1.619a)	Yes	Certified	Met all CRs and FRs with the following exception: Does not support the full range of MLPP service domain.[1]
E1 ISDN PRI (ITU-T Q.955.3)	Yes (Europe only)	Not Tested	This interface is only required for deployment in Europe. This interface is not supported; therefore, the SUT is not certified for deployment in Europe. Since this is not a required interface for a MFS except when deployed in Europe, there is no operational impact.
T1 SS7 (ANSI T1.619a)	Yes	Certified	Met all CRs and FRs with the following exceptions: Does not support the full range of MLPP service domain.[1] Does not have the capability to assign prioritization to the Initial Address Message based on precedence level.[2]
E1 SS7 (ITU-T Q.735.3)	Yes (Europe only)	Not Tested	This interface is only required for deployment in Europe. This interface is not supported; therefore, the SUT is not certified for deployment in Europe. Since this is not a required interface for a MFS except when deployed in Europe, there is no operational impact.

Table 1. SUT Interoperability Summary (continued)

DISN Line Interfaces			
Interface & Signaling	**Critical**	**Status**	**Remarks**
2-Wire Analog (GR-506-CORE)	Yes	Certified	Met all CRs and FRs with the following exceptions: Does not fully support MLPP functionality on a 3-Party call.[3] Does not properly support MLPP interaction for call pick-up.[4]
ISDN BRI S/T and U Interface ITU-T Q.931	Yes	Certified	Met all CRs and FRs with the following exceptions: Does not fully support MLPP functionality on a 3-Party call.[3] Does not properly support MLPP interaction for call pick-up.[4] The SUT will only support MLPP (voice) with 5E Custom BRI protocol.[5]
2-Wire Digital and Analog (Proprietary)	No	Not Tested	This interface is not supported by the SUT and is not required for a MFS.
2-Wire Analog Ground Start Line (GR-506-CORE)	Yes	Certified	Met all CRs and FRs.
Voicemail			
Interface	**Critical**	**Status**	**Remarks**
T1 CAS	No	Certified	Met all CRs and FRs.
T1 ISDN PRI NI 1/2 (ANSI T1.607)	No	Certified	Met all CRs and FRs.
Serial SMDI interface[6]	No	Certified	Met all CRs and FRs.
Automated Call Distributor			
Interface	**Critical**	**Status**	**Remarks**
T1 CAS (DTMF, MFR1, DP)	No	Certified	Met all CRs and FRs. The SUT is certified for use with any ACD on the UC APL which is certified for this interface.
T1 ISDN PRI NI 1/2 (ANSI T1.607)	No	Certified	Met all CRs and FRs. The SUT is certified for use with any ACD on the UC APL which is certified for this interface.
Analog	No	Certified	Met all CRs and FRs. The SUT is certified for use with any ACD on the UC APL which is certified for this interface.
Network Management[7]			
Interface & Signaling	**Critical**	**Status**	**Remarks**
IEEE 802.3 10BaseT Ethernet, TCP/IP	No	Certified	Met all CRs and FRs.
EIA-232 Asynchronous at 9.6 kbps	No	Certified	Met all CRs and FRs.
ITU-T X.25	No	Not-Tested	This interface is not supported by the SUT and is not required for a MFS.
DISN Features and Capabilities			
Features and Capabilities	**Critical**	**Status**	**Remarks**
Common Features	Yes	Certified	Met all CRs and FRs.
Attendant	Yes	Certified	Met all CRs and FRs.
Public Safety	Yes	Certified	Met all CRs and FRs.
Preset Conferencing	Yes	Certified	Met all CRs and FRs. The SUT is certified with any conference bridge on the UC APL which is certified for the same interfaces.
Nailed-up Connections	Yes	Certified	Met all CRs and FRs.
Precedence Access Threshold	No	Certified	Met all CRs and FRs with the following exceptions: Does not support PAT queuing.[8]
DISN Hotline Services	Yes	Certified	Met all CRs and FRs.
Tandem Switching	Yes	Certified	Met all CRs and FRs.
ISDN Services (EKTS)	No	Not Certified	Does not support MLPP with EKTS.[9]
Synchronization	Yes	Certified	Met all CRs and FRs.
Reliability	Yes	Certified	Met all CRs and FRs.
Security	Yes	See note 10.	See note 10.
RSU			
Features and Capabilities	**Critical**	**Status**	**Remarks**
Normal Operation	No	Certified	Met all CRs and FRs.
Degraded Operations	No	Certified	Met all CRs and FRs.

Table 1. SUT Interoperability Summary (continued)

DISN Trunk Interfaces				
Network Gateways				
Gateway	**Interface & Signaling**	**Critical**	**Status**	**Remarks**
PSTN	T1 CAS (DTMF, MFR1, DP)	Yes	Certified	Met all CRs and FRs.
	E1 CAS (DTMF, MFR1, DP)	Yes (Europe only)	Not Tested	This interface is only required for deployment in Europe. This interface is not supported; therefore, the SUT is not certified for deployment in Europe. Since this is not a required interface for a MFS except when deployed in Europe, there is no operational impact.
	T1 ISDN PRI NI1/NI2 (ANSI T1.607)	Yes	Certified	Met all CRs and FRs.
	E1 ISDN PRI (ITU-T Q.931)	Yes (Europe only)	Not Tested	This interface is only required for deployment in Europe. This interface is not supported; therefore, the SUT is not certified for deployment in Europe. Since this is not a required interface for a MFS except when deployed in Europe, there is no operational impact.
	Ground Start Line	Yes	Certified	Met all CRs and FRs.
Tactical	T1 CAS (DTMF, MFR1, DP)	Yes	Certified	Met all CRs and FRs.
	E1 CAS (MFR1)	Yes (Europe only)	Not Tested	This interface is only required for deployment in Europe. This interface is not supported; therefore, the SUT is not certified for deployment in Europe. Since this is not a required interface for a MFS except when deployed in Europe, there is no operational impact.
DRSN[11]	T1 ISDN PRI NI1/NI2 (ANSI T1 619a)	Yes	Certified	Met all CRs and FRs.

Table 1. SUT Interoperability Summary (continued)

NOTES:

1. The SUT does not support the full range of MLPP service domains on the ANSI T1.619a ISDN T1 PRI and the ANSI T1.619a T1 SS7 trunk types. The SUT supports 256 MLPP service domains instead of the required 16,777,216. Since there is only one MLPP service domain used in the DISN, there is no operational impact.
2. The UCR states that, in case of congestion, IAMs carrying FLASH or FLASH OVERRIDE calls shall be assigned a priority of three, IMMEDIATE calls shall be assigned a priority of two, PRIORITY calls shall be assigned a priority of one, and ROUTINE calls a priority of zero. The SUT does not have the capability to assign prioritization to SS7 IAMs based on precedence level (i.e. FLASH OVERRIDE, FLASH, IMMEDIATE, etc.). The SUT assigns a priority level of one in the IAMs to all precedence levels. Due to the amount of traffic in the DISN, congestion is not possible over the SS7 56 kbps link; therefore there is no operational impact.
3. The UCR states that when any party of a 3-party call is preempted, the remaining parties will receive a conference disconnect tone. The SUT however, preempts all parties of the conference when the originator of the 3-party call is preempted. Since the originator is properly classmarked at the highest precedence of both legs of the 3-party call, the operational impact is minor.
4. The SUT call pickup feature doesn't retrieve the call with the highest precedence first. The SUT retrieves unanswered call pickup group calls above ROUTINE in a random sequence. The UCR requires that "If a call pickup group has more than one party in an unanswered condition and the unanswered parties are at different precedence levels, a call pickup attempt in that group shall retrieve the highest precedence call first." All unanswered precedence calls above ROUTINE in the pickup group do divert after 15-45 seconds if unanswered and are positively connected to the attendant, night service, or alternate DN. The same method is used for diverting calls that go to an unattended phone. There is no operational impact because all precedence calls are answered.
5. The SUT only supports MLPP (voice) with 5E Custom protocol on their ISDN BRI interface with their proprietary 8510 instruments and certified Tone Commander ISDN BRI instruments. The Tone Commander ISDN BRI instruments have been tested and are the only ISDN BRI vendor certified for joint use within the DISN for all major DISN switches to include the SUT. In addition, the SUT BRI interface has been tested and is interoperable with all versions of the L3 Communications Secure Terminal Equipment devices using 5E Custom Protocol; therefore, there is no operational impact.
6. The SMDI serial interface is required for voice mail systems to turn on and turn off the voice mail lamp or stutter dial tone.
7. The UCR NM requirements state that a switch can provide NM capabilities via Ethernet, serial asynchronous (EIA-232), or serial synchronous (ITU-T X.25). The SUT meets all the requirements for NM over EIA-232 asynchronous serial.
8. The SUT met all CRs and FRs for PAT with the following minor exception: PAT Queuing is not supported by the SUT. PAT is a conditional requirement for a MFS which makes the operational impact of this discrepancy minor.
9. The SUT did not meet all CRs and FRs for ISDN services EKTS. The SUT does not support MLPP interaction with telephones assigned the MADN option. This option applies to EKTS ISDN BRI telephones. The SUT does not support MLPP interaction with these instruments when more than one ISDN BRI instrument shares the same DN. Therefore, the EKTS MADN functionality of the SUT is not certified for use in the DISN. The operational impact is minor.
10. Information assurance testing is accomplished via DISA-led Information Assurance test teams and published in a separate report, Reference (f).
11. Interoperability certification of the SUT does not constitute DRSN PM approval for connectivity to the DRSN. It is the user's responsibility to request connectivity approval directly from the PM.

Table 1. SUT Interoperability Summary (continued)

LEGEND:

10BaseT	10 Mbps (Baseband Operation, Twisted Pair) Ethernet	JITC	Joint Interoperability Test Command
802.3	Standard for carrier sense multiple access with collision detection at 10 Mbps	kbps	kilobits per second
ACD	Automated Call Distributor	MADN	Multiple Appearance Directory Number
ANSI	American National Standards Institute	Mbps	Megabits per second
APL	Approved Products List	MFR1	Multifrequency Recommendation 1
BRI	Basic Rate Interface	MFS	Multifunction Switch
CAS	Channel Associated Signaling	MLPP	Multi-Level Precedence and Preemption
CRs	Capability Requirements	NI 1/2	National ISDN Standard 1 or 2
DCE	Data Circuit-Terminating Equipment	NM	Network Management
DISA	Defense Information Systems Agency	PAT	Precedence Access Threshold
DN	Directory Number	PM	Program Manager
DP	Dial Pulse	PRI	Primary Rate Interface
DRSN	Defense Red Switch Network	PSTN	Public Switched Telephone Network
DISN	Defense Information Systems Network	Q.735.3	SS7 Signaling Standard for E1 MLPP
DSS1	Digital Subscriber Signaling 1	Q.931	Signaling Standard for ISDN
DTE	Data Terminal Equipment	Q.955.3	ISDN Signaling standard for E1 MLPP
DTMF	Dual Tone Multi-Frequency	RSU	Remote Switching Unit
E1	European Basic Multiplex Rate (2.048 Mbps)	SE	Succession Enterprise
EIA	Electronic Industries Alliance	SMDI	Simplified Message Desk Interface
EIA-232	Standard for defining the mechanical and electrical characteristics for connecting DTE and DCE data communications devices	SMEO	Small End Office
		SS7	Signaling System 7
		S/T	ISDN BRI four-wire interface
		SUT	System Under Test
EKTS	Electronic Key Telephone System	T1	Digital Transmission Link Level 1 (1.544 Mbps)
EO	End Office	T1.607	ISDN – Layer 3 Signaling Specification for Circuit Switched Bearer Service for DSS1
FRs	Feature Requirements		
GR	Generic Requirement	T1.619a	SS7 and ISDN MLPP Signaling Standard for T1
GR-506	Telcordia Signaling for Analog Interface Generic Requirement	TCP/IP	Transmission Control Protocol/Internet Protocol
		U	ISDN BRI two-wire interface
IAM	Initial Address Message	UCR	Unified Capabilities Requirement
IEEE	Institute of Electrical and Electronics Engineers	X.25	Interface between DTE and DCE for terminals operating in the packet mode and connected to public data networks by dedicated circuit
ISDN	Integrated Services Digital Network		
ITU-T	International Telecommunication Union - Telecommunication Standardization Sector		

Table 2. MFS Requirements

DISN Trunk Interfaces				
Interface	**Critical**	**Requirements Required or Conditional**		**References**
T1 CAS (MFR1, DTMF, DP)	No	Trunking	• PBX Line (R)	• UCR Section 5.2.1.3.1
			• Direct Inward Dialing (R)	• UCR Section 5.2.1.3.2
			• ISDN Primary Access (R)	• UCR Section 5.2.1.3.4
			• Network Power Systems for External Interfaces (R)	• UCR Section 5.2.4.1
			• Line Signaling (R)	• UCR Section 5.2.4.2
			• Reverse Battery (R)	• UCR Section 5.2.4.3.1
			• Normal Wink Start Operations (R)	• UCR Section 5.2.4.3.3.1.1
			• Glare Operation (R)	• UCR Section 5.2.4.3.3.1.2
			• Wink Start (R)	• UCR Section 5.2.4.3.3.2.1
			• Glare Resolution (R)	• UCR Section 5.2.4.3.3.2.2
			• Call for Service Timing (R)	• UCR Section 5.2.4.3.5
			• Guard Timing (R)	• UCR Section 5.2.4.3.6
			• Satellite Timing (R)	• UCR Section 5.2.4.3.7
			• Disconnect Control (R)	• UCR Section 5.2.4.3.8
			• Reselect and Retrial (R)	• UCR Section 5.2.4.3.9
			• Off-Hook Supervision Transition (R)	• UCR Section 5.2.4.3.10
			• Control Signaling (R)	• UCR Section 5.2.4.4
E1 CAS (MFR1, DTMF, DP)	No (Europe only)		• Alerting Signals and Tones (R)	• UCR Section 5.2.4.5
			• Common Channel Signaling 7 (R)	• UCR Section 5.2.4.6
			• Application (R)	• UCR Section 5.2.4.7.1.1
			• Physical Layer (R)	• UCR Section 5.2.4.7.1.2
			• Data Link Layer (R)	• UCR Section 5.2.4.7.1.3
			• Data Link Connection (R)	• UCR Section 5.2.4.7.1.3.1
			• Peer-to-Peer Procedures of Data-Link Layer (R)	• UCR Section 5.2.4.7.1.3.2
			• Layer 3 DISN User-to-Network Signaling (R)	• UCR Section 5.2.4.7.1.4
T1 ISDN PRI NI 1/2 (ANSI T1.619a)	Yes		• DISN User-to-Network Signaling for Circuit-Switched Bearer Services (R)	• UCR Section 5.2.4.7.1.4.2
			• Sequence of Messages for DISN Circuit-Switched Calls (R)	• UCR Section 5.2.4.7.1.4.3
			• Message Functional Definition and Content (R)	• UCR Section 5.2.4.7.1.4.4
			• General Message Format and Information Elements Coding (R)	• UCR Section 5.2.4.7.1.4.5
			• Supplementary Services (C)	• UCR Section 5.2.4.7.1.4.6
			• PCM-24 Digital Trunk Interface (R)	• UCR Section 5.2.6.1
			• PCM-30 Digital Trunk Interface (R)	• UCR Section 5.2.6.2
			• Interoperation of PCM-24 and PCM-30 (R)	• UCR Section 5.2.6.3
E1 ISDN PRI (ITU-T Q.955.3)	No (Europe only)		• Analog Trunk Interface (C)	• UCR Section 5.2.6.4
			• Integrated Digital Loop Carrier (R)	• UCR Section 5.2.6.5
			• 100-Type Test Line (R)	• UCR Section 5.2.1.5.1.1
			• 101-Type Test Line (R)	• UCR Section 5.2.1.5.1.2
			• 102-Type Test Line (R)	• UCR Section 5.2.1.5.1.3
			• 105-Type Test Line (R)	• UCR Section 5.2.1.5.1.4
			• Synchronous Test Line (R)	• UCR Section 5.2.1.5.1.5
			• Non-Synchronous Test Line (R)	• UCR Section 5.2.1.5.1.6
			• Permanent Busy Test Line (R)	• UCR Section 5.2.1.5.1.7
			• Dialable Cable Pair Locator Tone (C)	• UCR Section 5.2.1.5.2.1
			• DTMF Station Test Circuit (R)	• UCR Section 5.2.1.5.2.2
			• Test Incoming Trunks in Tandem or Local State (C)	• UCR Section 5.2.1.5.3
			• Manual Test Line (R) (added this one)	• UCR Section 5.2.1.5.4.1
			• Manual Test of Trunks (R) (added this one)	• UCR Section 5.2.1.5.4.2
			• Trunk Group-Remove from Service (R)	• UCR Section 5.2.1.5.5
			• Trunk Group-Restore to Service (R)	• UCR Section 5.2.1.5.6
			• Carrier Group Alarm (R)	• UCR Section 5.2.1.5.7
			• Software Carrier Group Alarm (C)	• UCR Section 5.2.1.5.7.1

Table 2. MFS Requirements (continued)

DISN Trunk Interfaces (continued)				
Interface	**Critical**	**Requirements Required or Conditional**		**References**
T1 CAS (MFR1, DTMF, DP)	No	Voice	• MOS (R) • Secure calls (R)	• CJCSI 6215.01C • CJCSI 6215.01C
E1 CAS (MFR1, DTMF, DP)	No (Europe only)	Facsimile	• Analog: ITU-T T.4 (R)	• DISR
T1 ISDN PRI NI 1/2 (ANSI T1.619a)	Yes	Data	• Modem (VBD) (R) • 56 kbps switched data (R) • 64 kbps switched data (R: E1, PRI, and SS7) • NX56 synchronous BER (R) • NX64 synchronous BER (R: E1, PRI, and SS7) • Secure data (STE/STU-III) (R)	• CJCSI 6215.01C • UCR 5.2.2.9.6 • UCR Section 5.2.2.9.6 • UCR Section 5.2.2.9.6 • UCR Section 5.2.2.9.6 • CJCSI 6215.01C
E1 ISDN PRI (ITU-T Q.955.3)	No (Europe only)	VTC	• ITU-T H.320 (R: PRI only)	• FTR 1080B-2002
DISN Line Interfaces				
2-Wire Analog	Yes	Access	• Directory Number Identification (R) • National ISDN 1/2 Basic Access (R) • Analog Line (R) • Line signaling (R) • Loop Start Line (R: 2-Wire Analog only) • Alerting Signals and Tones (R) • S/T Reference Point (ISDN BRI) (R)	• UCR Section 5.2.1.1.1 • UCR Section 5.2.1.3.3 • UCR Section 5.2.1.3.5 • UCR Section 5.2.4.2 • UCR Section 5.2.4.2.1 • UCR Section 5.2.4.4.5 • UCR Section 5.2.4.7.1.2.1
ISDN BRI NI 1/2 (ANSI T1.619a)	No	Voice	• MOS (R) • Secure Calls (R)	• CJCSI 6215.01C • CJCSI 6215.01C
		Facsimile	• Analog: ITU-T T.4 (R)	• DISR
Proprietary	No	Data	• Modem (VBD) (R: 2W analog only) • 56 kbps switched data (R: BRI only) • 64 kbps switched data (R: BRI only) • NX56 synchronous BER (R: BRI only) • NX64 synchronous BER (R: BRI only) • Secure data (STE/STU-III) (R)	• CJCSI 6215.01C • UCR Section 5.2.2.9.6 • UCR Section 5.2.2.9.6 • UCR Section 5.2.2.9.6 • UCR Section 5.2.2.9.6 • CJCSI 6215.01C
VoIP	No	VTC	• ITU-T H.320 (R: BRI only)	• FTR 1080B-2002

Table 2. MFS Requirements (continued)

DISN Features & Capabilities			
Feature/ Capability	**Critical**	**Requirements Required or Conditional**	**References**
Common Features	Yes	• Individual Lines (R) • Selective call rejection (C) • Denied originating service (C) • Code restriction and diversion (R) • Call waiting (R) • Three-way calling (R) • Add-On Transfer, Conference Calling Features (C) • Call Transfer Individual – All calls (R) • Call Transfer - Internal Only (R) • Call Transfer – Individual – Incoming Only/Add-On Consultation Hold – Incoming Call (R) • Call Transfer – Outside (R) • Call Transfer – Add-On Restricted Station (C) • Call Transfer – Attendant (C) • Call Hold (R) • Conference Calling – Six Way Station Controlled (C) • Call forwarding Variable (R) • Call Forwarding Busy Line (R) • Call Forwarding – Don't Answer – All Calls (R) • Selective Call Forwarding (C) • Call pick-up (C) • Address Translation (R) • Assured Dial Tone (R)	• UCR Section 5.2.1.1.1 • UCR Section 5.2.1.1.2 • UCR Section 5.2.1.1.3 • UCR Section 5.2.1.1.4 • UCR Section 5.2.1.1.5.1 • UCR Section 5.2.1.1.6 • UCR Section 5.2.1.1.7 • UCR Section 5.2.1.1.7.1 • UCR Section 5.2.1.1.7.2 • UCR Section 5.2.1.1.7.3 • UCR Section 5.2.1.1.7.4 • UCR Section 5.2.1.1.7.5 • UCR Section 5.2.1.1.7.6 • UCR Section 5.2.1.1.7.7 • UCR Section 5.2.1.1.7.8 • UCR Section 5.2.1.1.8.1 • UCR Section 5.2.1.1.8.2 • UCR Section 5.2.1.1.8.3 • UCR Section 5.2.1.1.8.4 • UCR Section 5.2.1.1.9.1 • UCR Section 5.2.1.7 • UCR Section 5.2.1.9
Attendant	Yes	• Attendant Features (R)	• UCR Section 5.2.1.2
Public Safety	Yes	• Basic Emergency Service (911) (R) • Emergency Service Public Safety Answering Point (C) • Enhanced Emergency Service (C) • Trace of terminating calls (R) • Outgoing call trace (R) • Tandem call trace (R) • Trace of a call in progress (R)	• UCR Section 5.3.2.2.2.2.1 • UCR Section 5.2.1.4.1.2 • UCR Section 5.2.1.4.1.3 • UCR Section 5.2.1.4.2 • UCR Section 5.2.1.4.3 • UCR Section 5.2.1.4.4 • UCR Section 5.2.1.4.5
Conferencing	Yes	• Preset Conferencing (R) • Conference Notification Recorded Announcement (R) • Automatic Retrial and Alternate Address (R) • Bridge Release (R) • Lost Connection to Conferee or Originator (R) • Secondary Conferencing (R) • Meet-Me Conferencing (R) • Progressive Conferencing (C) • Address Translation (R)	• UCR Section 5.2.1.6.1 • UCR Section 5.2.1.6.1.1 • UCR Section 5.2.1.6.1.2 • UCR Section 5.2.1.6.1.3 • UCR Section 5.2.1.6.1.4 • UCR Section 5.2.1.6.1.5 • UCR Section 5.2.1.6.2 • UCR Section 5.2.1.6.3 • UCR Section 5.2.1.7
Nailed-up Connections	Yes	• Nailed-Up Connections (R)	• UCR Section 5.2.1.8
DISN Hotline Services	Yes	• DISN Analog Hotline Service (R)	• UCR Section 5.2.1.12
Tandem Switching	Yes	• Tandem Features (R)	• UCR Section 5.2.7.3 Table 5.2.7-1

Table 2. MFS Requirements (continued)

DISN Features & Capabilities (continued)			
Feature/ Capability	**Critical**	**Requirements Required or Conditional**	**References**
MLPP	Yes	• MLPP Overview (R) • Preemption in the Network (R) • MLPP Interworking with Other Networks (R) • Precedence Call Diversion (R) • Preempt Signaling (R) • Analog Line MLPP (R) • ISDN MLPP Basic Rate Interface General Description (R) • Single B Channel, Single Appearance, Single DN (R) • Line Active with a Lower Precedence Call (R) • Line Active with a Equal or Higher Precedence Call (R) • Single B Channel, Multiple Appearances, Single DN (C) • Two B Channels, Multiple Appearances, Single DN (C) • Two B Channel, Two DN (Data Mode Only) (R) • ISDN Primary Rate Interface (R) • Precedence Call Waiting (R) • Call Forwarding (R) • Call Transfer (R) • Call Hold (R) • Three-Way Calling (R) • Call Pickup (C) • Conferencing (C) • Multiline Hunt Group (C) • Community of Interest (R) • MLPP Common Channel Signaling Number 7 (R) • Look-Ahead Busy (C) • Precedence Parameters (R) • Actions Required at Originating Exchange (R) • MLPP CCS7 TCAP (R) • Parameters (R) • Bear Capability Supported – 10010011 (R) • Circuit Identification Code – 10011010 (R) • Call Reference – 10011100 (R) • Release Message Cause Value (R) • CAS to CCS Trunk Network in a Mixed Media Network (R) • MLPP Interaction with EKTS features (C)	• UCR Section 5.2.2.1 • UCR Section 5.2.2.2 • UCR Section 5.2.2.2.4 • UCR Section 5.2.2.3 • UCR Section 5.2.2.4 • UCR Section 5.2.2.5 • UCR Section 5.2.2.6 • UCR Section 5.2.2.6.2 • UCR Section 5.2.2.5.1.1 • UCR Section 5.2.2.5.1.2 • UCR Section 5.2.2.6.3 • UCR Section 5.2.2.6.4 • UCR Section 5.2.2.6.5 • UCR Section 5.2.2.7 • UCR Section 5.2.2..8.1 • UCR Section 5.2.2.8.2 • UCR Section 5.2.2.8.3 • UCR Section 5.2.2.8.4 • UCR Section 5.2.2.8.5 • UCR Section 5.2.2.8.6 • UCR Section 5.2.2.8.7 • UCR Section 5.2.2.8.8 • UCR Section 5.2.2.8.9 • UCR Section 5.2.2.9 • UCR Section 5.2.2.9.3 • UCR Section 5.2.2.9.4 • UCR Section 5.2.2.9.4.1 • UCR Section 5.2.2.9.4.2 • UCR Section 5.2.2.9.4.2.1 • UCR Section 5.2.2.9.4.2.1.1 • UCR Section 5.2.2.9.4.2.1.2 • UCR Section 5.2.2.9.4.2.1.3 • UCR Section 5.2.2.9.5 • UCR Section 5.2.2-13 • UCR Section 5.2.2.10.1

Table 2. MFS Requirements (continued)

DISN Features & Capabilities (continued)			
Feature/ Capability	**Critical**	**Requirements Required or Conditional**	**References**
Call Processing	Yes	• Call Treatments (R) • Primary and Alternate Routing (R) • E&M Lead Signaling States (C) • 4-Wire Analog User Access Lines (C) • 2-Wire User Access Lines (R) • Termination of Analog Lines (R) • DISN Interswitch Trunk Call Processing (non-CCS/ISDN) (R) • DISN User Dialing (R) • Interswitch and Intraswitch Dialing (R) • Seven-Digit Dialing (R) • Ten-Digit Dialing (R) • Access Code (R) • Access Digit (R) • Precedence Digit (R) • Service Digit (R) • Route Code (R) • Area Code (R) • Switch Code (R) • Line Number (R) • Calling Name Delivery (C) • Calling Number Delivery (R) • Emergency Service 911 Conflict Resolution (R) • DISN Switch Outpulsing Digit Formats (R) • Standard Directory Number (R) • Standard Test Numbers (R) • Base Services – Abbreviated Numbers (R) • Digit Reception Requirements (R) • Digit Registration Capacity (R) • Screening (R)	• UCR Section 5.2.3.1 • UCR Section 5.2.3.2 • UCR Section 5.2.3.3.1 • UCR Section 5.2.3.3.2 • UCR Section 5.2.3.3.3 • UCR Section 5.2.3.3.4 • UCR Section 5.2.3.4 • UCR Section 5.2.3.5.1.1 • UCR Section 5.2.3.5.1.2 • UCR Section 5.2.3.5.1.2.1 • UCR Section 5.2.3.5.1.2.2 • UCR Section 5.2.3.5.1.3 • UCR Section 5.2.3.5.1.3.1 • UCR Section 5.2.3.5.1.3.2 • UCR Section 5.2.3.5.1.3.3 • UCR Section 5.2.3.5.1.4 • UCR Section 5.2.3.5.1.5 • UCR Section 5.2.3.5.1.6 • UCR Section 5.2.3.5.1.7 • UCR Section 5.2.3.5.1.8.1 • UCR Section 5.2.3.5.1.8.2 • UCR Section 5.2.3.5.1.9 • UCR Section 5.2.3.5.2 • UCR Section 5.2.3.5.3 • UCR Section 5.2.3.5.4 • UCR Section 5.2.3.5.5 • UCR Section 5.2.3.5.6 • UCR Section 5.2.3.5.7 • UCR Section 5.2.3.5.8
Network Management	Yes	• Interfaces (R) • Data Quality (R) • Traffic Measurements (R) • Reference Data (R) • Line Servicing (R) • Trunk Groups (R) • Call Processors (R) • Switch Services (R) • Special Studies (R) • Remote Switching Studies (C) • Features (C) • Common Channel Signaling Network Measurements (R) • ISDN Measurements (R) • Traffic Capacity (R) • Fault management (R) • Configuration management (R) • Performance management (R) • Network Management controls (R) • Remote access (R) • DISN Call Detail Recording Fields (R) • Call Detail Recording Data Retention (R)	• UCR Section 5.2.12.7.4.1 • UCR Section 5.2.8.2.1.1 • UCR Section 5.2.8.2.2.1.1 • UCR Section 5.2.8.2.2.1.2 • UCR Section 5.2.8.2.2.2 • UCR Section 5.2.8.2.2.3 • UCR Section 5.2.8.2.2.4 • UCR Section 5.2.8.2.2.5 • UCR Section 5.2.8.2.2.6 • UCR Section 5.2.8.2.2.7 • UCR Section 5.2.8.2.2.8 • UCR Section 5.2.8.2.3 • UCR Section 5.2.8.2.4 • UCR Section 5.2.8.2.5 • UCR Section 5.2.8.3 • UCR Section 5.2.8.4 • UCR Section 5.2.8.6 • UCR Section 5.2.8.7 • UCR Section 5.2.8.8 • UCR Section 5.2.8.5.1 • UCR Section 5.2.8.5.2

Table 2. MFS Requirements (continued)

DISN Features & Capabilities (continued)			
Feature/ Capability	**Critical**	**Requirements Required or Conditional**	**References**
ISDN Services	Yes	• BRI Access, Call Control and Signaling (R) • Uniform Interface Configuration for BRIs (R) • Electronic Key Telephone Systems (EKTS) (C) • PRI Access, Call Control and Signaling (R) • PRI Features (R) • Packet Data Features and Capabilities (C)	• UCR Section Table 5.2.9-1 • UCR Section Table 5.2.9-2 • UCR Section 5.2.2.10.1 • UCR Section Table 5.2.9-4 • UCR Section Table 5.2.9-5 • UCR Section Table 5.2.9-6
Synchronization	Yes	• External line timing mode (R) • Line timing mode (R) • Internal Stratum 3 ® • Synchronization Performance Monitoring Criteria (R) • DS1 Traffic Interfaces (R) • DS0 Traffic Interconnects (R)	• UCR Section 5.2.10.1.1.1 • UCR Section 5.2.10.1.1.2 • UCR Section 5.2.10.1.2.1 • UCR Section 5.2.10.2 • UCR Section 5.2.10.3 • UCR Section 5.2.10.4
Reliability (See note 1.)	Yes	• Reliability Requirements (R) • Backup Power (R) • Power Components (R) • UPS Requirements (R) • UPS Load Capacity (R) • Backup Power (Environmental) (R) • Alarms (R)	• UCR Section 5.2.11.1 • UCR Section 5.2.11.3 • UCR Section 5.2.11.3.1 • UCR Section 5.2.11.3.2 • UCR Section 5.2.11.3.2.1 • UCR Section 5.2.11.3.3 • UCR Section 5.2.11.3.4
Security	Yes	• GR-815, STIGs, and DoDI 8510.bb (DIACAP) (R)	• UCR Sections 3.2.3, 3.2.5, and 5.4.6.1
RSU			
Normal Operations	No	RSU function is conditional. If an RSU is provided, **all** of the following requirements must be met: • Same user features as EO, SMEO, or PBX • Normal operations in accordance with GR-532-CORE • If EO, provide diverse routing to host and PSTN	 • UCR Section 2.10.2 • UCR Section 2.10.2 • UCR Section 2.10.2
Degraded Operations	No	RSU function is conditional. If an RSU is provided, **all** of the following requirements must be met: • Stand-alone - Stand-alone in accordance with GR-532-CORE - Automated Message Accounting not required - MLPP required • Partial stand-alone operations - Partial in accordance with GR-532-CORE - 3% users provided assured dial tone - Normal MLPP interaction	 • UCR Section 2.10.3.1 • UCR Section 2.10.3.2

Table 2 MFS Requirements (continued)

Network Gateways				
Gateway	**Critical**	**Requirements Required or Conditional**		**References**
PSTN [2]	No	Trunking	• Positive Identification Control (C) • On-Netting (C) • Off-Netting (C) • Immediate Start (C) • Delay Dial (C)	• CJCSI 6215.01C • CJCSI 6215.01C • CJCSI 6215.01C • UCR Section 5.2.4.3.2 • UCR Section 5.2.4.3.4
Tactical	Yes	Trunking	• Trunk Groups (R) • Call Processing (R)	• UCR Section 5.2.8.2.2.3 • UCR Section 5.2.8.2.2.4
		Voice	• MLPP (R) • Secure calls (R)	• UCR Section 5.2.2.1 • CJCSI 6215.01C
		Facsimile	• Analog: ITU-T T.4 (R)	• DISR
DRSN[3]	Yes	Access	• Alerting Signals and Tones (R) • Call Processing (R) • Call Treatments (R) • Analog busy/idle (R)	• UCR Section 5.2.4.5 • UCR Section 5.2.7.4 • UCR Section 5.2.3.1 • UCR Section 5.2.3.3.3
		Voice	• MOS (R) • MLPP (R) • Secure calls (R)	• CJCSI 6215.01C • UCR 5.2.2.1 • CJCSI 6215.01C

NOTES:
1. Backup power, power components, UPS requirements, UPS load capacity and alarms are non-testable requirements. It is the responsibility of the respective base/post/camp/station communication agency to provide this with the SUT when installed.
2. Voice, facsimile, data, and VTC service requirements for PSTN are identical to DISN with the exception of MLPP.
3. Facsimile, data, and VTC services are not provided via the DISN to DRSN interface.

Table 2. MFS Requirements (continued)

LEGEND:

802.3u	Standard for carrier sense multiple access with collision detection at 100 Mbps	FTR 1080B-2002	Video Teleconferencing Services	PCM-24	Pulse Code Modulation - 24 Channels
		G.711	PCM of voice frequencies		
		GR	Generic Requirement	PCM-30	Pulse Code Modulation - 30 Channels
ANSI	American National Standards Institute	GR-815	Generic Requirements For Network Element/Network System (NE/NS) Security	PRI	Primary Rate Interface
				PSTN	Public Switched Telephone Network
BER	Bit Error Ratio	H.320	Standard for Narrowband VTC		
BRI	Basic Rate Interface	IEEE	Institute of Electrical and Electronics Engineers	Q.955.3	ISDN Signaling Standard for E1 MLPP
C	Conditional				
CAS	Channel Associated Signaling	IP	Internet Protocol	R	Required
CJCSI	Chairman of the Joint Chiefs of Staff Instruction	IPv6	Internet Protocol version 6	S/T	ISDN BRI four-wire interface
CODEC	Coder/Decoder	ISDN	Integrated Services Digital Network	SS7	Signaling System 7
DIACAP	DoD Information Assurance Certification and Accreditation Process	IT	Information Technology	STE	Secure Terminal Equipment
		ITU-T	International Telecommunication Union-Telecommunication Standardization Sector	STIGs	Security Technical Implementation Guides
DISA	Defense Information Systems Agency			STU-III	Secure Telephone Unit -3rd generation
DISR	DoD IT Standards Registry				
DoD	Department of Defense	kbps	kilobits per second	T.4	Standardization of Group 3 facsimile terminals for document transmission
DoDI	Department of Defense Instruction	Mbps	Megabits per second		
		MFR1	Multi-Frequency		
DP	Dial Pulse		Recommendation 1	T1	Digital Transmission Link Level 1 (1.544 Mbps)
DS0	Digital Signal Level 0 (64 kbps)	MLPP	Multi-Level Precedence and Preemption	T1.619a	SS7 and ISDN MLPP Signaling Standard for T1
DS1	Digital Signal Level 1 (1.544 Mbps) (2.048 Mbps European)	MOS	Mean Opinion Score		
		NI 1/2	National ISDN Standard 1 or 2	TDM	Time Division Multiplexing
DISN	Defense Information Switched Network	NX56	Data format restricted to multiples of 56 kbps	UCR	Unified Capabilities Requirements
DTMF	Dual Tone Multi-Frequency				
E&M	Ear and Mouth	NX64	Data format restricted to multiples of 64 kbps	UPS	Uninterruptible Power Supply
E1	European Basic Multiplex Rate (2.048 Mbps)				
		PBX	Private Branch Exchange	VBD	Variable bit data
EKTS	Electronic Key Telephone System	PBX 1	Private Branch Exchange 1	VoIP	Voice over Internet Protocol
		PCM	Pulse Code Modulation	VTC	Video Teleconferencing
FTR	Federal Telecommunications Recommendation				

5. No detailed test report was developed in accordance with the Program Manager's request. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at https://stp.fhu.disa.mil. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at http://jit.fhu.disa.mil (NIPRNet). Information related to DISN testing is on the Telecom Switched Services Interoperability (TSSI) website at http://jitc.fhu.disa.mil/tssi. Due to the sensitivity of the information, the Information Assurance Accreditation Package (IAAP) that contains the approved configuration and deployment guide must be requested directly through government civilian or uniformed military personnel from the Unified Capabilities Certification Office (UCCO), e-mail: ucco@disa.mil.

JITC Memo, JTE, Extension of the Special Interoperability Test Certification of Alcatel-Lucent Class 5 Electronic Switching System (5ESS) Very Compact Digital Exchange (VCDX) Digital Switching System with Software Release 5E16.2, from Broadcast Warning Message (BWM) 10-0001 to BWM 12-0001

6. The JITC point of contact is Capt Stéphane Arsenault, DSN 879-5269, commercial (520) 538-5269, FAX DISN 879-4347, or e-mail to Stephane.P.Arsenault.fm@mail.mil. The JITC's mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The tracking number for the SUT is 1029901.

FOR THE COMMANDER:

Enclosure a/s

For RICHARD A. MEADOR
Chief
Battlespace Communications Portfolio

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National Security Agency, DT
Defense Information Systems Agency, TEMC
Office of Assistant Secretary of Defense (NII)/DOD CIO
U.S. Joint Forces Command, Net-Centric Integration, Communication, and Capabilities Division, J68
Defense Information Systems Agency, GS23

ADDITIONAL REFERENCES

(c) Office of the Assistant Secretary of Defense, "Department of Defense Unified Capabilities Requirements 2008," 22 January 2009

(d) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP), Change 2," 2 October 2006

(e) Joint Interoperability Test Command, Memo, JTE, "Special Interoperability Test Certification of the Alcatel-Lucent Class 5 Electronic Switching System (5ESS) Very Compact Digital Exchange (VCDX) Digital Switching System with Software Release 5E16.2, Broadcast Warning Message (BWM) 10-0001," 12 September 2011

(f) Joint Interoperability Test Command, "Information Assurance (IA) Assessment of Alcatel-Lucent 5ESS/Very Compact Digital Exchange (VCDX) Switch Release (Rel.) 5E16.2 (Tracking Number 1029901)," Draft